

A CASE OF CHOREA ATTENDED WITH MULTIPLE NEURITIS.¹

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BARBARA MUELLER first presented herself at the clinic for diseases of the nervous system, at the St. Louis Medical College, January 23, 1886. She was then eleven years of age. Nothing of importance in family history was obtained, except that her father, who always accompanied her to the dispensary, occasionally had attacks of sub-acute rheumatism; and that her younger brother had been treated by us for chorea, as I shall hereafter explain.

She had a general chorea, attended by no unusual features that were then discovered. The movements were more pronounced on the right side of the body, including the face. A slight paresis was apparent in the extremities of this side when the choreic movements were disappearing. This was transient. When she first came she was anæmic, restless, sleepless, and very irritable. These symptoms soon began to disappear. She made a rapid recovery, and was discharged within a few weeks apparently well, having gained considerably in weight and greatly improved in general appearance. The treatment consisted of arsenic and iron, and, at first, bromides at night.

March 24, 1887, she returned to the clinic. Her father stated that she had appeared to be very well until a few days prior to this date, when she complained of starting from her sleep at night. Her appetite was failing; she was becoming very restless and peevish, and complained of the lumps on her legs. There were decided but feeble general choreic movements of the whole body. On the lower extremities

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there was a typical erythema nodosum, of which she complained considerably. The heart's action was feeble and rapid. There was no murmur. She did not seem to be so anæmic as when she came the year before, but she showed evidence of a general debility or lassitude which contrasted strongly with her condition when she had discontinued treatment the previous spring.

April 9th, after a careful examination, I found that none of the tendon- or skin-reflexes in the extremities could be produced. I did not try the nose or pharynx. I noticed for the first time on this date an inequality of the pupils, the left remaining decidedly larger. Dr. William Hunicke made an examination, and was unable to assign a satisfactory cause for the inequality, but thought it possibly due to some central disturbance. The choreic movements became a little worse, but were not severe enough to cause much inconvenience. All of the symptoms, including the chorea, soon began rapidly to disappear, and she discontinued her attendance at the dispensary in the latter part of May (1887), apparently well.

January 3, 1888, she returned again to the clinic. She had a return of the chorea, which was general but not severe. Her general condition seemed better than when she applied for treatment on the former occasions. Her visits were not frequent, and nothing remarkable was noted until

February 4th, when she came with a marked paresis of the lower extremities, which, so far as could be learned from the father, had developed within a day or so. The dropping of the toes in walking, or the gait characteristic of paralysis of the anterior tibial nerves, was remarked. The knee-jerk was gone. She complained of tingling in the feet. Arsenic was discontinued.

February 10th she was unable to walk, and was carried to the clinic. She complained of painful tingling in the feet and legs and to some extent in the hands. Muscular power in the hands and forearms was very feeble. From this date her visits to the clinic were infrequent.

April 12th (two months after the declaration of the

paralysis) the first careful electrical examination was made. It showed a reaction of degeneration in the muscles of the hands, feet, forearms, legs, arms, and thighs. The muscles were considerably atrophied and already somewhat contracted, the toes being flexed and the ankles extended, the hands and wrists presenting the first stage of the well-described bird-claw deformity. Tactile and temperature sense were almost *nil* over the areas of motor paralysis. The deep and superficial reflexes were gone. The muscles of the face, neck, and trunk were not involved; neither was sensation disturbed over these areas.

May 1st there was the first evidence of improvement, she being able to slightly move the arms. From this time improvement was continuous, but very gradual.

May, 1889 (fifteen months after commencement of paralysis), she was walking very well, the toes, however, dropping as she raised the feet in stepping, giving an appreciable halt to the gait, although she could walk fast. The deformity was fast disappearing from the hands. The muscular power in all the extremities was good.

I last saw her in November (1889). There was then a barely appreciable dropping of the toes, suggesting more of a stiff gait from tight shoes than a paralysis or paresis of the anterior tibial nerves. The usefulness and shape of the hands were completely restored. So far as I could determine, sensation was about normal. The knee-jerk was still absent. Her general condition was very good.

The immediate cause of this paralysis was undoubtedly a multiple neuritis. That it was not a cerebral paralysis is apparent; for, besides its character—*i. e.*, an atrophic paralysis with the reflexes gone—it had not the distribution of a cerebral paralysis. That it was due to disease of the peripheral portions of the spinal nerves, and not of the cord, an examination of the facts makes clear: It was symmetrical, so much so indeed that the deformity of the hands was almost identical on the two sides, and also the amount of flexion of the toes. It was not only symmetrical, but the paralysis was most profound in the distal portions of the several extremities, lessening toward the trunk. The sen-

sory disturbance was extensive—in fact, coextensive with the motor paralysis, and persistent. Although the paralysis was profound and extensive and accompanied with atrophy, the recovery was complete.

The question now comes, what was the cause of the neuritis? It could not have been of alcoholic origin, as there is positive evidence that none was taken. There had been no exposure to cold or wet, to account for it. A neuritis of this description is said to sometimes accompany or follow rheumatism; but our patient had never had rheumatism nor any articular trouble. It was suggested at the time that it was possibly due to arsenic, which she had been taking for a month, prior to which time she had had none for eight months. She had taken larger quantities for a longer time on former occasions, had borne it well, and improved during its administration. The drug was entirely and permanently discontinued on the appearance of the paralysis; yet the latter ran a tedious course, as described above. That the neuritis simply followed an exhausted or depreciated condition of the system, caused by chorea, as it sometimes does typhoid, phthisis, etc., may not, I think, be too readily conceded. In the first place, the association of multiple neuritis with phthisis, typhoid, diphtheria, and similarly debilitating diseases is by no means clear. In the second place, there were no unusual evidences of exhaustion or vitiated condition of the system on this occasion; in fact, when she was seized with the paralysis, her general condition seemed better, as stated in the history, than on the occasions of her former attacks of chorea.

Before attempting to look further for a possible etiological factor, I shall briefly relate, as a matter of incidental interest, our experience with this girl's brother. Fourteen months prior to her first visit to us he was brought to the dispensary with his first attack of chorea. He was then seven years old. He has returned once or twice every year since to be treated for the same trouble. On most of these occasions there has been an unusually rapid and marked change in his general condition following the administration of arsenic; beyond this nothing especially remarkable until

last fall. At this time there were, for the first, pains in the joints, and finally sub-acute arthritis with swelling and slight fever. Later still a soft murmur appeared in the heart, and persisted for about three weeks. The pulse was rapid, irregular, and weak. These symptoms all disappeared, and when he left us he was as well as I have ever seen him.

Cases of chorea occasionally occur which suggest, in some respects at least, the possibility of an infectious origin. Some observers have been so impressed with the fact, that they have undertaken laborious investigations looking toward the discovery of unknown factors, possibly infectious, in the etiology of this disease. In a paper² which I read before the Mississippi Valley Medical Society four years ago, I reviewed at some length a paper on the "Prechoreic Stage of Chorea," read by Dr. C. R. Stratton at the annual meeting of the British Medical Association in 1885. He reminds clinicians of the fact that a considerable proportion of the young subjects in whom chorea appears are found to have been in a prodromal stage, so to speak, characterized by anæmia, general lowered vitality (accompanied often with sores on the margins of the lips and nose), blunted intellect, great physical and mental irritability, sometimes by slight febrile action, vague pains and swellings of the joints, heart-murmurs, etc.; and that, in this condition, they are often treated for malaria, rheumatism, general debility, etc., until the chorea appears. With these clinical facts in mind, he suggests that chorea may be not a constant but an occasional result or symptom of some malady or maladies, possibly infectious, whose characters are not yet known to us. He made examinations of the micro-organisms found in the sores on the lips and nose, and, in post-mortem cases, of the vegetations found on the valves of the heart, and of certain minute infarctions found in the nerve-centres. In these vegetations he found the same organisms that he found in the sores on the face; and he believed the infarctions to be formed from small particles carried from the

² St. Louis Courier of Medicine, August, 1886.

valve-lesions to the distant capillaries, forming in the brain-tissue, and probably elsewhere, a characteristic pathological condition. Although the microscopical findings proved nothing definitely, Dr. Stratton was of the opinion that they lent color to his suggestion. In other words, the presence of the same micrococcus, which he then believed could be proved to possess distinctive characters of staining, etc., in these several regions of the body, would seem to supplement very well the clinical features sustaining his theory of an infectious origin.

This girl and her brother repeatedly appeared at the clinic, as the records show, in this same anæmic condition, with restlessness, sleeplessness, and mental excitability, with disturbed heart-action, with an unusual eruption in one instance in the girl's case and an arthritis and heart-murmur in the boy's case. In both these cases sores on the margins of the lips and nose were observed and noted, but were not invariably present during the choreic attacks. The great and seemingly unaccountable change in the condition of these two patients after a few days or weeks of treatment was quite remarkable; in the boy's case especially on two occasions amounting almost to a transformation, and a rapid one at that. I do not refer to the disappearance of the chorea merely, but to the improvement in general condition. Like other observers, I have seen, during a clinical experience of ten years in the city, very rapid improvement in choreic cases. But I have never seen it so prompt and striking and equally unaccountable as in one at least of these two cases, which have been under my observation, one five, the other four years. If I were looking for cases to classify in a category of cases of possible infectious origin, I should select these. I have seen others which less forcibly impressed me in the same way. Was the extensive multiple neuritis in our case possibly due to an infectious cause?